

What is claimed is:

1. In a method of casting a metal ingot comprising the steps of delivering molten metal to a direct chill mold, forming a solidified shell of metal, applying a coolant to a surface of the shell as it emerges from the mold, and withdrawing a solidified ingot from the mold, the improvement comprising:

the coolant containing an oxidation inhibitor for increasing the rate of heat transfer from the solidifying metal compared to a coolant not containing the oxidation inhibitor to produce an ingot which is resistant to cracking.

2. The method of claim 1 wherein the metal is an alloy of aluminum or magnesium.

3. The method of claim 2 wherein the coolant comprises water.

4. The method of claim 3 wherein the metal is an aluminum alloy and the oxidation inhibitor prevents or minimizes the formation of aluminum oxide on the surface of the ingot.

5. The method of claim 4 wherein the oxidation inhibitor comprises a phosphate compound.

6. The method of claim 5 wherein the phosphate compound comprises tetrapotassium pyrophosphate.

7. The method of claim 6 wherein the concentration of tetrapotassium pyrophosphate in the coolant is about 1 to about 10 ppm.

8. The method of claim 3 wherein the aluminum alloy is alloy of an Aluminum Association series selected from the group consisting of 1000, 2000, 3000, 4000, 5000, 6000, 7000 and 8000.

9. The method of claim 3 wherein the aluminum alloy is alloy of an Aluminum Association series 2000 or 7000.

10. An aluminum alloy ingot produced according to the method of claim 1.

11. The ingot of claim 10 wherein a surface of the ingot comprises an oxidation inhibitor.

12. The ingot of claim 11 wherein the oxidation inhibitor comprises tetrapotassium pyrophosphate.

13. The ingot of claim 11 wherein the surface of the ingot is bright.